

What is claimed is:

1. A method for producing a semiconductor device comprising;
forming an opening by etching process using a resist pattern as
5 a mask in a multi-layered film having a first organic insulating film, a
first etching stop film and a second organic insulating film being
layered in this order such that the opening penetrates from the second
organic insulating film to the first organic insulating film,

10 wherein a second etching stop film is formed between the resist
pattern and the second organic insulating film to protect the second
organic insulating film from being etched during the formation of the
opening.

15 2. A method for producing a semiconductor device as claimed in
Claim 1, wherein the first organic insulating film has a dielectric
constant of about 3 or lower.

20 3. A method for producing a semiconductor device as claimed in
Claim 1, wherein the first organic insulating film includes a single
layer or a multi-layered film of polytetrafluoroethylene, fluorinated
polyallyl ether or fluorinated polyimide.

25 4. A method for producing a semiconductor device as claimed in
Claim 3, wherein the second etching stop film is made from the same
material as the first etching stop film.

5. A method for producing a semiconductor device as claimed in Claim 1, wherein the first etching stop film is a film that functions as an etching stopper to the first organic insulating film and has an insulating function.

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6. A method for producing a semiconductor device as claimed in Claim 5, wherein the first etching stop film has a selectivity ratio with respect to the second organic insulating film of 5 or higher.

10 7. A method for producing a semiconductor device as claimed in Claim 6, wherein the first etching stop film includes a single layer or a multi-layered films made of silicon oxide, silicon nitride, BPSG, PSG, BSG or AsSG.

15 8. A method for producing a semiconductor device as claimed in Claim 1, wherein the second etching stop film is formed of such a material in such a film thickness that the second organic insulating film is protected from being etched when an opening is formed through the second organic insulating film to the first organic insulating film.

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9. A method for producing a semiconductor device as claimed in Claim 1, wherein another etching stop film which is functioned as a diffusion barrier for metallic elements or impurities is provided under the multi-layered film.

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